DAN MCCABE

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PROFESSIONAL SUMMARY

Award-winning researcher with expertise in both transportation and industrial engineering. I'm comfortable with modeling and optimizing all types of complex systems and solving problems with a toolkit that spans engineering, data science, and programming.

EDUCATION

M.S. (2021) & Ph.D. (2024), Civil Engineering
University of Washington, Seattle, WA

- PhD Dissertation -- *Computational Tools for Battery-Electric Bus Systems: From Infrastructure Planning to Daily Operations*
- NSF Graduate Research Fellow

B.S., Engineering (2017)
Harvey Mudd College, Claremont, CA

- Graduated with distinction
- Dean's List, all semesters

EXPERIENCE

Research Assistant (2019-2024) | University of Washington | Seattle, WA

- Support research in Intelligent Urban Transportation Systems (iUTS) Lab. Projects include:
  - ZEBRA, a Python-based web app that helps transit agencies with bus fleet electrification planning (available at https://bit.ly/zebra-app)
  - Optimization models to determine where to locate charging stations and schedule daily charging operations.

Research Associate (2017-2019) | Pacific Northwest National Laboratory | Seattle, WA

Research Associate | 2017-2019

- Performed research in national security and energy domains, focused on infrastructure modeling and optimization. Main projects included the *Airport Risk Assessment Model* to optimize security resource allocation at airports and the *Grid Project Impact Quantification Tool*, an online app for evaluating power systems projects.

SKILLS & COURSEWORK

Operations Research & Data Science

- Integer, linear, and nonlinear programming models and algorithms
- Optimization solvers and software (e.g., Gurobi, CPLEX, Pyomo)
- Simulation

Programming Languages

- Python with extensive use of common libraries (NumPy, Pandas, Plotly, matplotlib)
- Comfortable with MATLAB, R, SQL
- Some experience with Java, C++

Collaboration & Communication

- Git/GitHub
- Agile software development
- Software documentation
- Reports, publications, and presentations

RESEARCH

Publications

McCabe, D., X.J. Ban., and B. Kulcsár. Recharging Scheduling for Electric Buses with Exact Delay Propagation. arXiv preprint, 2024. https://arxiv.org/abs/2403.17527.

McCabe, D. and X.J. Ban. Optimal Locations and Sizes of Layover Charging Stations for Electric Buses. *Transportation Research Part C: Emerging Technologies* 152 (2023): 104157.

Presentations & Poster Sessions

Oct 2024 INFORMS Annual Meeting, Seattle, WA (upcoming)
Jan 2024 Transportation Research Board Annual Meeting, Washington, DC
Oct 2023 PacTrans Region 10 Transportation Conference, Seattle, WA
Oct 2022 INFORMS Annual Meeting, Indianapolis, IN
Jan 2021 Transportation Research Board Annual Meeting, held remotely

International Experience

Chalmers University of Technology | Gothenburg, Sweden

- Visiting PhD student, March to September, 2023. Awarded UW Valle Scholarship.

ACTIVITIES & LEADERSHIP

Volunteer | Pedaling Relief Project (2022-present)

Volunteer to deliver groceries by bicycle from food banks to local people and community food pantries. Occasionally develop software for coordinating volunteers and delivery routes.

President | Husky Cycling Club (2021-2024)

Leader of student cycling club at the University of Washington. Organize group bicycle rides, coordinate training and travel to races, manage sponsorships and ~$15k annual budget.

Athlete | Claremont-Mudd-Scripps Cross Country & Track (2013-2017)

Distance runner for NCAA Division III sports teams.